WHAT IS CLAIMED IS:

1. A method of manufacturing a Group III nitride single crystal comprising:

heating a material for the Group III nitride single crystal so that the material is sublimed or evaporated into an aeriform substance; and

crystallizing the aeriform substance to grow a single crystal,

wherein the single crystal is grown under pressure.

2. The method according to claim 1, wherein the Group III element is at least one selected from the group consisting of Ga, Al, and In.

3. The method according to claim 1, wherein the single crystal is grown in an atmosphere of a nitrogen (N) containing gas.

4. The method according to claim 3, wherein the nitrogen (N) containing gas includes at least one selected from the group consisting of NH_3, N_2, and inert gas.

5. The method according to claim 1, wherein the material is at least one selected from the group consisting of Ga, Al, In, GaN powder, AlN powder, and InN powder.

6. The method according to claim 1, wherein the aeriform substance is produced by heating and subliming the material, and the crystallization is performed by cooling the aeriform substance and by allowing the aeriform substance and a reactive gas to react with each other.

7. The method according to claim 6, wherein the aeriform substance is supplied to a crystal generation region by a carrier gas, and the single crystal is grown in the crystal generation region.

8. The method according to claim 6, wherein the single crystal is grown in an atmosphere of a nitrogen (N) containing gas.

9. The method according to claim 8, wherein the nitrogen (N) containing gas is a mixed gas containing NH_3 and N_2.

10. The method according to claim 6, wherein the reactive gas includes at least a NH_3 gas, and further includes at least one selected from the group consisting of a N_2 gas and inert gas.

11. The method according to claim 6, wherein the material is at least one selected from the group consisting of Ga, Al, In, GaN powder, AlN powder, and InN powder.

12. The method according to claim 7, wherein a temperature (T1(°C)) of the material and a temperature (T2(°C)) of the crystal generation region are controlled independently, and the single crystal is grown while satisfying T1 > T2.

13. The method according to claim 7, wherein the carrier gas includes at least one selected from the group consisting of a N_2 gas, inert gas, and hydrogen gas.

14. The method according to claim 8, wherein the nitrogen (N) containing gas includes impurities so that the impurities are introduced into the Group III nitride single crystal.

15. The method according to claim 1, wherein the aeriform substance is produced by heating and evaporating the material, and the crystallization is performed by allowing the aeriform substance and a reactive gas to react with each other.

16. The method according to claim 15, wherein the aeriform substance is supplied to a crystal generation region by a carrier gas, and the single crystal is grown in the crystal generation region.

17. The method according to claim 15, wherein part or all of the aeriform substance is at least one selected from the group consisting of GaH_x, AlH_x, InH_x, GaN_xH, AlN_xH, and InN_xH.

18. The method according to claim 15, wherein the single crystal is grown in an atmosphere of a nitrogen (N) containing gas.

19. The method according to claim 18, wherein the nitrogen (N) containing gas includes at least one selected from the group consisting of a N_2 gas and inert gas.

20. The method according to claim 16, wherein the carrier gas includes at least one selected from the group consisting of a N_2 gas, inert gas, and hydrogen gas.

21. The method according to claim 15, wherein the reactive gas includes at least a NH_3 gas, and further includes at least one selected from the group consisting of a N_2 gas and inert gas.

22. The method according to claim 15, wherein the material is at least one selected from the group consisting of Ga, Al, and In.

23. The method according to claim 18, wherein the nitrogen (N) containing gas includes impurities so that the impurities are introduced into the Group III nitride single crystal.

24. The method according to claim 15, wherein the material is heated, decomposed, and evaporated.

25. The method according to claim 24, wherein the aeriform substance is supplied to a crystal generation region by a carrier gas, and the single crystal is grown in the crystal generation region.

26. The method according to claim 24, wherein part or all of the aeriform substance is at least one selected from the group consisting of GaH_x, AlH_x, InH_x, GaN_xH, AlN_xH, and InN_xH.

27. The method according to claim 24, wherein the single crystal is grown in an atmosphere of a nitrogen (N) containing gas.

28. The method according to claim 27, wherein the nitrogen (N) containing gas includes at least one selected from the group consisting of a N_2 gas and inert gas.

29. The method according to claim 25, wherein the carrier gas includes at least one selected from the group consisting of a N_2 gas, inert gas, and hydrogen gas.

30. The method according to claim 24, wherein the reactive gas includes at least a NH_3 gas, and further includes at least one selected from the group consisting of a N_2 gas and inert gas.

31. The method according to claim 24, wherein the material is at least one selected from the group consisting of GaN powder, AlN powder, and InN powder.

32. The method according to claim 27, wherein the nitrogen (N) containing gas includes impurities so that the impurities are introduced into the Group III nitride single crystal.

33. The method according to claim 1, wherein the pressure is more than 1 atm and not more than 10000 atm (more than $1 \times 1.013 \times 10^5$ Pa and not more than $10000 \times 1.013 \times 10^5$ Pa).

34. The method according to claim 1,wherein the material is heated at 300°C to 2400°C.

35. The method according to claim 1, wherein the material is added during a process of growing the single crystal.

36. The method according to claim 1, wherein a Group III nitride is prepared as a nucleus of crystal growth, and then the single crystal is grown on the surface of the nucleus.

37. The method according to claim 36, wherein the Group III nitride that serves as a nucleus is a single crystal or amorphous.

38. The method according to claim 36, wherein the Group III nitride that serves as a nucleus is in the form of a thin film.

39. The method according to claim 38, wherein the thin film is formed on a substrate.

40. The method according to claim 36, wherein the Group III nitride that serves as a nucleus has a maximum diameter of not less than 2 cm.

41. The method according to claim 36, wherein the Group III nitride that serves as a nucleus has a maximum diameter of not less than 3 cm.

42. The method according to claim 36, wherein the Group III nitride that serves as a nucleus has a maximum diameter of not less than 5 cm.

43. The method according to claim 1, wherein the single crystal is grown on a substrate.

44. The method according to claim 43, wherein the substrate is made of at least one material selected from the group consisting of amorphous gallium nitride (GaN), amorphous aluminum nitride (AlN), sapphire, silicon (Si), gallium arsenide (GaAs), gallium nitride (GaN), aluminum nitride (AlN), silicon carbide (SiC), boron nitride (BN), lithium gallium oxide ($LiGaO_2$), zirconium diboride (ZrB_2), zinc oxide (ZnO), glass, metal, boron phosphide (BP), MoS_2, $LaAlO_3$, NbN, $MnFe_2O_4$, $ZnFe_2O_4$, ZrN, TiN, gallium phosphide (GaP), $MgAl_2O_4$, $NdGaO_3$, $LiAlO_2$, $ScAlMgO_4$, and $Ca_8La_2(PO_4)_6O_2$.

45. The method according to claim 1, wherein a growth rate of the Group III nitride single crystal is not less than 100 μm/h.

46. The method according to claim 36, wherein the Group III nitride is prepared in a crystal generation region, and then a reactive gas flows on the Group III nitride.

47. A device for manufacturing a Group III nitride single crystal with the method according to claim 1 comprising:

a heating means for heating the material; and

a pressure application means for regulating pressure of a growth atmosphere of the single crystal.

48. The device according to claim 47, further comprising:

a means for crystallizing the aeriform substance by allowing a reactive gas to flow on the aeriform substance.

49. The device according to claim 47, further comprising:

a material supply region; and

a crystal generation region,

wherein the heating means and a carrier gas introduction means are provided in the material supply region, and a reactive gas introduction means is provided in the crystal generation region.

50. The method according to claim 49, wherein the material supply region and the crystal generation region are separated by a baffle.

51. A Group III nitride single crystal manufactured by the method according to claim 1.

52. A semiconductor device comprising the Group III nitride single crystal according to claim 51.